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Strategies and Scientific Methods Division
State of the Environment Reporting Branch
Canadian Wildlife Service

Canada

TOWARDS AN SOE REPORTING ACTION PLAN:
OPPORTUNITIES TO 1993

Report No. 3

February 1989

Strategies and Scientific Methods
SOE Reporting Branch, CWS
Environment Canada

Technical Report Series
Report No. 3

1. INTRODUCTION

This report and the accompanying matrices provide the strategic framework and program of activities for SOE reporting in the federal government over the next five years -- to 1993. A summary of the context and importance of SOE reporting, as well as the federal government's legislative responsibilities in this area are outlined first to provide the background. The report then presents the framework for SOE reporting: the definition, long-term goals and approach. This is followed by a description of the strategies designed to achieve these goals and guide more detailed SOE program activities. The attached matrices were developed as a means by which to match strategies with program activities. They identify priority actions for SOE reporting over the next five years. The SOE reporting activities outlined in the matrices are more comprehensive than those presented in Long Term Operational Plans (LTOPs), and thus should serve as a guide to the more detailed SOE activities to be written into annual work plans.

2. WHY WE NEED SOE REPORTING: CONTEXT AND MANDATE

Canadians, individually and collectively, interact with and depend upon the environment. Clearly, environmental conditions reflect the inter-relationships between human activities and the environment. Awareness of these inter-connections is becoming more acute with the growing evidence in some areas that the quality and productivity of the environment are being seriously degraded. There is increasing concern that we could be pushing the use of the environment too far -- beyond its ability to sustain itself. Indeed, the World Commission of Environment and Development (Brundtland) served urgent notice in 1987, that 'based on the latest and best scientific evidence, decisions must be taken now to ensure both sustainable human progress and human survival'.

Knowledge of the overall state of our environment, the patterns, trends and implications of human interactions with the environment is an essential prerequisite to taking the appropriate actions that support sustainable use of the environment and natural resources. Our efforts in maintaining environmental quality can be measured against the goals for environmentally-sustainable development as outlined by the World Conservation Strategy. In other words, does the state of the environment indicate that we are successfully:

1. maintaining essential life-support systems?
2. preserving genetic diversity? and
3. using species and ecosystems in a sustainable manner?

Information gathered on environmental trends and an analysis of their significance, integrated and interpreted through SOE reporting, are critical for assessing whether or not we are indeed maintaining a healthy environment and achieving sustainable development.

In 1986, following the favourable public response to Canada's first national state of the environment report, and reinforced by the emphasis placed on SOE reporting by both the UN Brundtland Commission

and Canada's National Task Force on Environment and Economy, it became clear that a comprehensive and continuing system of environmental reporting was needed in Canada.

The Federal Environmental Quality Policy Framework provided initial Cabinet authority for a State of the Environment reporting system in December 1986, and outlined key functions of the system, namely:

- to prepare national reports every five years;
- to prepare reports and other products on high profile environmental issues;
- to guide and assist federal departments in their preparation of sectoral reports and information;
- to develop and maintain a publicly-accessible SOE data base in co-operation with stakeholders.

Guiding principles for the SOE reporting system included: the right of Canadians to know the state of Canada's environment; the responsibility of federal ministers to deliver environmental quality within their mandates; and the provision of leadership by the Minister of the Environment, on behalf of the federal government, for delivering environmental quality to Canadians. The Framework identified the other federal departments responsible for participating in and supporting the SOE reporting program.

At the June 1988 International Conference on the Changing Atmosphere, the Prime Minister announced that, "We have instituted the first-ever state of the environment reporting system, guided by a citizens' advisory panel, and secured by law." The Canadian Environmental Protection Act, which passed into law in June 1988, gives SOE reporting its legislative mandate. Section 2(g) of the Act states: "The Government of Canada shall ... provide information to the people of Canada on the state of the Canadian environment." Section 7 of the Act also makes reference to publishing and/or distributing information on all aspects of the quality of the environment.

Environmental reporting should assist concerned citizens and decision-makers in understanding many of the challenges in the environmental science field. Narrowing the gap between the growing capability of science to monitor the presence of pollutants and its lesser ability to interpret meaningfully this data is an area requiring priority action. As well as providing a measure of the country's overall environmental health, the reporting system should facilitate the use of environmental data in decision-making. Currently, entrepreneurs, developers, policy makers and planners have access to a wealth of data about the economy on which to make decisions.

Establishment of an SOE reporting system will allow for the integration of environmental information with economic data, thereby providing a more complete perspective from which to make better decisions in support of environmentally-sustainable development. The success of this undertaking very much depends upon the ability of the department to involve other stakeholders and promote uses of the system.

3. SOE REPORTING FRAMEWORK

3.1 DEFINITION:

SOE reporting is the systematic analysis, description and presentation of credible, scientifically-based information on environmental conditions and trends, and their significance to Canadians from an integrated, holistic perspective.

The theme underlying SOE reporting is the link between human activity and the environment, and the ensuing implications for human and economic health and the state of ecological systems. Key elements of environmental reporting are integration and analysis of high quality data.

3.2 GOALS:

State of the environment reporting has four long-term goals:

1. To increase awareness and understanding among diverse audiences about the state of the environment and its implications for Canadians;

2. To provide a systematic means for identifying and anticipating changes in the environment at an early stage in order to consider alternatives for action;

3. To provide tools for evaluating, from an environmental perspective, the effectiveness of policies and practices of government, industry, consumers, and the public;

4. To provide a basis for improved decision-making and for encouraging sustainable use of the environment and natural resources.

3.3 APPROACH:

A conceptual model designed to assess new and emerging issues to determine the department's strategic direction for the future was recently developed and applied in a departmental planning exercise. Within this model, communications was identified as an important tool for pro-active environmental management. SOE is an ideal vehicle to fulfill this important departmental strategy. Development of a comprehensive SOE reporting system requires an organization and framework in which to operate, and a clear definition of the roles and responsibilities of the various parties involved. Strategies and a plan of action must be developed to enable the requirements of the system to be fulfilled. A systematic, staged approach toward the long-term goals for SOE reporting is envisaged.

A report entitled "Framework for State of the Environment Reporting Operations" (October 1988) outlined the roles and responsibilities of the immediate SOE reporting players. Planning guidelines were subsequently developed to help ensure that SOE reporting is consistently incorporated into the planning process of the department. A five-year action plan is the next step towards developing a comprehensive, continuing SOE reporting program.

Services should be building anticipated SOE activities and projected expenditures into their multi-year operation plans and, using the action plan as a guide, identifying specific SOE reporting activities in their annual work plans.

To guide these activities, the next three sections outline the scope and message of SOE reporting, and briefly describe the type of interpretation and assessment expected.

Scope

The scope of SOE reporting is sufficiently flexible to allow for reporting on the following:

- significant geographical areas (e.g.: "Environmental Quality in the Atlantic Region, 1985")
- specific ecosystems (e.g.: the marine environment, the boreal forest)
- groups of species (e.g.: endangered wildlife in Canada)
- comprehensive, national overview of the state of the environment (e.g.: "State of the Environment for Canada")

Message

The message of SOE reporting should be to:

- inform readers about the state, and trends in the state of the environment or some aspect of the environment;

(This could include, for example, a description of the biophysical state of a particular aspect of the environment, such as forests or marine ecosystems, or a geographical area.) and

- describe the relationships between social and economic activities and the environment, and report on the effects of these activities in terms of environmental quality, and the sustainable use of ecosystems.

(For example, a report on air quality would, in addition to assessing the ambient quality of the air we breathe, also discuss relationships between socio-economic activities and air quality, air quality and aquatic ecosystems, or air quality and forest growth.)

Interpretation and Assessment

Data interpretation is an essential feature of SOE reporting. To the fullest extent possible, trends in the data reflecting environmental quality, levels of contaminants, etc. should be placed in perspective through comparison with: established guidelines or objectives; ambient, natural background levels; environmental quality found in other areas; or by some other means. Data should not be reported without comment.

SOE reporting should offer scientific interpretation of the significance of environmental change for decision-makers, managers and the public at large. Interpretation of data and information should be accompanied by a broad assessment of the state of the sector, geographic area or resource being discussed.

3.4 STRATEGIES:

Six strategies have been identified to guide SOE reporting activities in the federal government. These strategies are all linked, and are designed to complement and build upon one another to provide a complete package for SOE reporting.

Strategy 1:

> **Produce a national assessment of environmental trends, conditions and their significance to Canadians, every five years.**

By Cabinet directive (FEQPF), the Minister of the Environment is responsible for presenting to Parliament every five years, a national report of the state of Canada's environment. This report is to be prepared in co-operation with other federal departments and with the provinces. Therefore, from a federal perspective, all DOE Services and Regions, as well as relevant OGDs should contribute to this national assessment.

Strategy 2:

> **Provide comprehensive, analytical information on the state of the environment on a geographic, issue, medium or resource-specific basis through reports, fact sheets and other media.**

The activities under this strategy should provide more in-depth analysis and interpretation about selected aspects of the state of the environment than is possible in a national overview. Reporting should be directed to high profile environmental issues, including departmental priorities, the state of specific resources or ecosystems and the environmental health of significant regions of the country. Various types of media should be employed.

Strategy 3:

> **Develop and maintain a publicly-accessible SOE information system with Statistics Canada.**

An important aspect of SOE reporting is to provide the public and decision-makers with the supporting data used in SOE reporting so that they can make their own interpretations on the state of the environment if they so wish. Activities under this strategy include developing a central SOE data base, identifying a network of environmental and natural resources data bases relevant to SOE reporting, and providing public access through an SOE referral system. All DOE Services and regions as well as appropriate OGDs will be contributing to some aspect of the SOE information system.

Strategy 4:

Research and develop methods, techniques, frameworks and procedures to improve SOE reporting, and implement as appropriate.

The program should provide the tools for improving SOE reporting through research on methods and techniques. This aspect, crucial to establishing and maintaining scientific credibility, includes developing a comprehensive set of environmental indicators, improving cross-sectoral analysis capabilities and assessing organizational frameworks.

Strategy 5:

Promote the use of SOE reporting data and cross-sectoral analysis for improved decision-making to achieve environmentally-sustainable development.

Activities include using SOE data and analysis to evaluate various programs and policies, both public and private sector, for their effectiveness in contributing to sustainable development.

Strategy 6:

Communicate and market SOE reporting results to diverse audiences, nationally and internationally, and promote stakeholders' involvement in the SOE reporting process.

The strategy follows the principle that a more aware and better informed public can lead to better decision-making in support of a healthy, sustainable environment. In essence this strategy could be a sub-element of the previous five strategies. However, it is important to identify the specific activities necessary to ensure that communications related to SOE reporting are adequately and appropriately maintained.

4. PROGRAM ACTIVITIES TO 1993:

Matrices in which specific program activities are matched with each SOE reporting strategy are attached. These matrices have been drawn up through the collective efforts of Environment Canada's SOE Working Group and representatives from Statistics Canada. While the current matrices represent the basis of the five-year action plan, each DOE Service and Region, as well as OGDs will be further developing and refining their SOE reporting activities on an on-going basis. Thus, the matrices will be reviewed annually and revised to reflect changes and new initiatives.

Note: Matrices showing the specific program activities proposed, matched to the six SOE reporting strategies, are draft versions prepared for February, 1989. While they represent the basis of a five- year action plan, each DOE Service and Region, as well as OGDs, will be further developing and refining their SOE reporting activities on an ongoing basis,

STRATEGY 1: PRODUCE A NATIONAL ASSESSMENT OF ENVIRONMENTAL TRENDS, CONDITIONS AND THEIR SIGNIFICANCE EVERY FIVE YEARS

FISCAL YEAR	SOE BRANCH	CPG, COMMUNIC, P&A	CAP	AES	PARKS	STATS CAN
1988/89	. Finalize 1991 national report outline (Sept/88) . Ongoing negotiation of DOE Service and Regional contributions - i.e. detailed outline, production mechanism and schedule for final draft . Initiate negotiations for major OGD contributions (Nov/88) . Final draft of urban section completed (Mar/89)		. CWS: first draft for wildlife and habitat sections underway (Mar/89) . IWD: first draft for freshwater section underway (Mar/89) . EP: first draft for waste generation and contaminants section underway (Mar/89)	. Negotiations completed and joint AES/SOE Br. preparation of Atmosphere section underway (Mar/89)	. First draft for Protected Areas section underway (Mar/89)	
1989/90	. Coordinate completion and review of 16 chapters of National Report (Sep/89) . Initiate coordination of drafts for remaining chapters of National Report (Sept/89) . Organization for editing, translation design & graphics in place (Jan/90) ? Contribute to St. Lawrence regional case study (see Strategy #4)		. CWS completes final draft of wildlife and habitat chapter . IWD completes final draft of freshwater chapter . EP completes final draft of waste generation and contaminants sections	. Final draft of Atmosphere chapter completed	. Obtain provincial and territorial cooperation and complete final draft of Protected Areas chapter	
1990/91	. Final report preparation, translation and preliminary production	(See Communications Strategy #6 for marketing activities for 1991 report)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	
1991/92	. Print 1991 National SOE report and coordinate release, advertising and distribution by (June/91) . Outline a plan for evaluating the procedures involved in preparing a national report	. Assist in developing evaluation strategy				
1992/93	. Evaluate procedures/process for preparing a national report . Initiate evaluation of response to National SOE Report (1992) . Begin consultation for 1996 National SOE report (April/92)	. Assist in evaluation of national report preparation . Evaluate success of marketing strategies for 1991 national report . Assist in evaluation of response to National SOE Report				

Symbols: . confirmed # active consideration ? potential opportunity

REVISED FEB/89

PAY	WAB	ONTARIO	QUEBEC	ATLANTIC	OGDS
. Consultation and 1st draft of regional case study (Lower Fraser) underway (Mar/89) . Contribute data to chapters relevant to B.C. as required	. Consultation and 1st draft of regional case study (Prairies) underway (Mar/89) . Contribute to chapters relevant to the region as required	. Consultation and 1st draft of regional case study (Great Lakes) underway (Mar/89) . Contribute to chapters relevant to the region as required	. Consultation on regional case study (St. Lawrence) (Mar/89) . Contribute to chapters relevant to the region as required	. Consultation and negotiations on regional case study (Atlantic Estuaries) (Mar/89) . Contribute to chapters relevant to the region as required	. DFO: first drafts for Coastlines & Oceans, and Fisheries sections underway (Mar/89) . Agric. Can: first draft for Agricultural section underway (Mar/89) . EMR: first draft for energy section underway (Mar/89) . DIAND: first draft for Arctic case study underway (Mar/89) . FORESTRY: negotiations completed and first draft of Forests section underway (Mar/89)
. Complete final draft of Lower Fraser regional case study . Contribute to review of chapters relevant to B.C. and Yukon	. Complete final draft of Prairie regional case study # Contribute to Management Responses section re: MAWP	. Complete final draft of Great Lakes regional case study	. Complete final draft of St. Lawrence regional case study	. Complete final draft of Atlantic regional case study	. Final drafts of Fisheries, Oceans and Coastlines completed . Final draft of Energy completed . Final draft of Agriculture completed . Final draft of Arctic Case Study completed . Final draft of Forests completed
. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)	. Review drafts of relevant chapters (by April/90)

STRATEGY 2: SOE PRODUCTS

FISCAL YEAR	SOE BRANCH	CPG, COMMUNIC, P&A	EAP	AES	PARKS	STATE CAR
1988/89	• Co-publish Pollutants in the Pacific Marine Environment report (Mar/89) • Publish Rural to Urban Conversion fact sheet (Mar/89) • Produce final draft of Air Quality report (Mar/89) • Co-author State of Groundwater in Canada report	(See strategy #6 for communications activities related to SOE products)	• CWS: prepare final draft Contaminant Trends in Seabirds (June/88)	• First draft of Impacts of Global Climate Change in Canada report (Mar/89) • Contribute to Air Quality report (Jan/89)	• Prepare final draft of People and Parks report (Mar/89)	
1989/90	• Publish State of Groundwater in Canada report (June/89) • Co-publish Threatened and Endangered Species report (Sept/89) • Guidelines for SOE publications (May/89) • Publish Contaminant Trends in Seabirds report and fact sheet (Sept/89) • Publish Land Use in Canada fact sheet (Aug/89) • Develop overall direction for topics in SOE Report series • Publish Air Quality report (Oct/89) • Co-ordinate production of MEQ national marine SOE report (Mar/90)	• Identify other potential SOE products • Assist in developing overall direction for SOE report series' topics	# IWD: Impact of Agricultural Activities on Water Quality fact sheet • EP: Update contribution to State of the Marine Environment report	• Final draft of Climate Change report (June/89)	# Publish Overview of Canada's protected areas • Contribute to Atlantic's 1990 SOE Report • Publish People and Parks report ? La Mauricie fact sheet on acid rain	# Produce Guide to the SOE Information System
1990/91	• Provide overall technical quality control, coordination and advice for SOE products # Co-publish State of the Marine Environment report	• Identify other potential SOE products	# IWD: Quality of Boundary Waters report ? EP: Co-ordinate potential national report on Toxic Chemicals in the Environment	# Contribute to report on Trends and Indicators of Climate Change	• Produce a report on State of Canada's National and Historic Parks (1990) for Parliament (relationship to SOE report series to be discussed) # Integrate Banff cumulative impact study into an SOE series report	
1991/92	• Provide overall technical quality control, coordination and advice for SOE products • Identify other potential SOE products, and commission products as required . Support other DOE agencies and OGDs in development of SOE products	• Identify other potential SOE products, and commission new products as required	• IWD: Canada Water Book: State of Water Resources (1991) # CWS: Prepare report on protection of endangered species in national parks, jointly with Parks Service		# Prepare report on protection of endangered species in national parks, jointly with CWS	• Publish Environmental Statistics Book (Human Activity and the Environment)
1992/93	• Provice overall technical quality control, coordination and advice for SOE products . Support other DOE agencies and OGDs in development of SOE products	• Identify other potential SOE products	? Contribute to State of Canada's North	? Contribute to State of Canada's North	? Contribute to State of Canada's North	

P&Y	W&N	ONTARIO	QUEBEC	ATLANTIC		
* Prepare final draft of Pollutants in the Pacific Marine Environment (April/88) * Contribute to State of Groundwater report (re B.C.)				* Publish Acid Rain Effects on Inland Waters in the Atlantic Region - SOE fact sheet (Oct/88)		
# Produce fact sheet on habitat preservation and Fraser River flood control program (Fall/89) * Produce State of Lower Fraser R. report and fact sheet * Update contribution to State of the Marine Environment Report (Pacific & Arctic)	* Co-author (NWRI) State of Groundwater in Canada report * Publish State of Water Resources on the Prairies report (June/89) # Update contribution to State of the Marine Environment Report	* SOE fact sheet on Upper Great Lakes Connecting Channels study # Fact sheet identifying all Can.-Ont. and Can.-U.S. SOE-type studies and reports in Great Lakes Basin # Fact sheet on park eco systems-Ontario * Update contribution to State of the Marine Environment Report (Hudson Bay) * Will release 6 reports that support SOE reporting	* Fact sheets on contaminants in the St. Lawrence R., water quality and ecozones of the St. Lawrence * Fact sheet on wetlands of the St. Lawrence * Contribute to State of the Marine Environment Report	# Report on Oil Spills and their Impact # Report on State of the Bay of Fundy * Provide lead to NEQ Advisory Group in update & coordination of National State of Marine Environment report	? DFO ? DIAND	Contribute to State of the Marine Environment Report
? Facilitate State of B.C. Forests report, with province and CFS ? Contribute to potential national report on Toxic Chemicals	? Initiate Prairie Climate Study in co-operation with provincial agencies and Canada Climate Centre ? Contribute to potential national report on Toxic Chemicals	* Contribute to potential national report on Toxic Chemicals	* Produce SOE Atlas for the St. Lawrence River * Fact sheets on St. Lawrence re: use of shorelines; assessment of non-point source pollution; sediments (effect on fisheries, toxic transport) * Reports on: State of the toxics situation in the St. Lawrence, and Evaluation of ecosystems and bio-indicators. ? Contribute to potential national report on Toxic Chemicals	* Regional SOE Overview for Atlantic Region (1990) ? Contribute to potential national report on Toxic Chemicals	? CFS - # H&W -	Contribute to report on B.C. Forests Report on Health and the Environment
* Will contribute to a potential report on State of Canada's North	? Initiate regional SOE report with provinces/territory	# Prepare an SOE report for Southwestern Ontario	* State of the St. Lawrence River Report * Two fact sheets * Report on riparian land use of the St. Lawrence			
* Produce a State of B.C. report with province * Produce video on climate change in B.C.	? Contribute to potential report on State of Canada's North	# SOE report on Northern Ontario	* Overview report on toxic chemicals in the St. Lawrence		? DIAND:	Co-ordinate and co-produce State of Canada's North; potential contributions: DIAND, EMR, DFO, TTC, AWT

STRATEGY 3: DEVELOP AND MAINTAIN A PUBLICLY ACCESSIBLE SOE INFORMATION SYSTEM WITH STATISTICS CANADA

FISCAL YEAR	SOE BRANCH	CPG, COMMUNIC, P&A	C&P	AES	PARKS	STATS CAN
1988/89	. Input to the SOEIS User Survey (needs) . Input to inventory of relevant, nationally significant data bases (federal) . Develop a data base inventory package for distribution . Develop selection criteria for environmental data in the SOE central data base . Input to policies for data handling . Input to preparation of Environmental Statistics Book . Transfer ecodistrict boundaries, other CLDS products to the SOEIS	. Facilitate contacts and data discussions with other services and OGD's, particularly for distribution of database survey form (CPG) . Participate as required in the development and/or distribution of a SOEIS user needs survey (CPG)	. Identify relevant data bases for the referral system by completing the SOE database inventory/ . Assist with the identification of data requirements for the SOE central data base	. As written for C&P	. Undertake an inventory of Parks' national data bases . Identify relevant data for the referral system by completing the SOE data base inventory . Define data requirements for SOE reporting	. In cooperation with SOE Br., carry out SOEIS User Survey (Needs) . Design referral system . Conduct an inventory of relevant and nationally significant data bases at the federal level . Develop criteria for socio-economic data selection . Advise SOE Br. on environmental data requirements for SOE central data base . Draft policies for data handling for review by data contributors . Initiate planning for preparation of Environmental Statistics Book
1989/90	. Provide advice to Stats Can on set-up of the SOE Referral System . Coordinate completion of Environment Canada data base inventory (Sep/89) . Advise Stats Can on central data base design and set-up . Continue to determine data requirements for the central data component . In cooperation with DOE data holders, selectively extract summarized data to a consistent format and transfer to the SOE central data-base . Input to Environmental Statistics Book	. Facilitate data discussions with OGD's for selection of data for SOE central data base (CPG)	. Assist with the identification of data requirements for the SOE central data base . As required, provide data to the SOE Branch for processing and transfer to the SOE central data base	. As written for C&P	. As written for C&P . Investigate the possible application of Atlantic region's model for rolling up existing national parks information . Examine data systems of other Services and investigate how these could be linked with parks data bases 0 Develop and administer a questionnaire to obtain national parks data	. Develop SOE Referral System . Follow-up as required with federal data base inventory . Process data base inventory returns . Design SOE central data base . Ongoing data acquisitioning (socio-economic and environmental) . Enter environmental data to SOE central data base . Initiate data collection for Environmental Statistics Book
1990/91	. Continue to extract and convert summarized data to a consistent format and load onto the SOE central data base . Provide advice on system development, including development of public access mechanisms		. As required, provide data to SOE Branch for processing and transfer to the SOE central data base	. As written for C&P	. As written for C&P	. Continue building SOE central data base . Finalize SOE Referral System . Continue Environmental Statistics Book preparation
1991/92	. Ensure that mechanisms are in place between SOEIS and environment data holders for data update purposes . Continue to refine system, provide data as needed	. In cooperation with Statistics Canada, prepare material on the SOEIS for distribution to potential users (Comm.) . Address other marketing aspects (CPG, Comm.)	. As required, provide data to the SOE Branch for processing and transfer to the SOE central data base	. As written for C&P	. As written for C&P	. Publish Environmental Statistics Book . SOE information system becomes publicly accessible . Ensure mechanisms are in place with sectoral data holders to update SOE info system
1992/93	. Advise Stats Can on the development and implementation of a procedure to evaluate the SOE info. system					. Develop and implement a procedure for evaluation of the SOE information system

P&Y	YKN	ONTARIO	QUEBEC	ATLANTIC	OCDO
. Identify relevant data bases for the referral system by completing the SOE data base inventory . Assist with the identification of data requirements for the SOE central data base	. As written for P&Y	. As written for P&Y	. As written for P&Y	. Assist the SOE Branch by integrating the results of the regional data base inventory into the national survey . Assist with the identification of data requirements for the SOE central data base	. As written for P&Y
. Assist with the identification of data requirements for the SOE central data base . As required, provide data to the SOE Branch for processing and transfer to the SOE central data base	. As written for P&Y	. As written for P&Y	. As written for P&Y . Produce a list of environmental data bases . Establish a regional reference centre and SOE data base . Establish a computerized environmental data bases system	. As written for P&Y . Complete an inventory of regional data bases relevant to regional SOE Reporting . Update regional data inventory as required	. As written for P&Y
. As required, provide data to the SOE Branch for processing and transfer to the SOE central data base	. As written for P&Y	. As written for P&Y	. As written for P&Y . Establish an environmental data bases network	. As written for P&Y . Update regional data inventory as required	. As written for P&Y
. As required, provide data to the SOE Branch for processing and transfer to the SOE central data base	. As written for P&Y	. As written for P&Y	. As written for P&Y . Expand the network	. As written for P&Y . Update regional data inventory as required	. As written for P&Y
			. Expand the network	. Update regional data inventory as required	

STRATEGY 4: SOE-RELATED RESEARCH

FISCAL YEAR	SOE BRANCH	CPC, COMMUNIC, PAA	CAP	AES	PARKS	STATS CAN
1988/89	. Produce draft spatial frameworks report (Sept/88) . Produce a literature review of environmental indicators (Feb/89) . Initiate pilot study to demonstrate integrated, cross-sectoral approach to assess the state of the St. Lawrence River Basin . Initiate research on socio-economic indicators for state of sustainable development in Canada		. Assist in socio-economic indicators project (CWS)		. Identify major data gaps across the protected areas system	. Undertake air pollution emissions modelling, with CAP . Undertake agricultural practices-erosion statistical research with Agric. Can.
1989/90	. Publish report on organizational & spatial frameworks (April/89) . Produce an env. issues management framework report . Conduct national consultations with NGOs on emerging environmental issues . Produce draft report assessing use of environmental indicators in Canada . For St. Lawrence pilot study, produce data base, atlas, electronic demonstration, and evaluation of cross-sectoral approach (July/89) . Initiate pilot study on env. indicators for one sector . Produce draft report on indicators for state of sustainable development ? Continue St. Lawrence study, incorporating new data from monitoring network		. Participate in environmental indicators survey and follow-up . Develop and evaluate new indicators for SOE Reporting . Assist in sustainable development indicators work (CWS)	. Participate in environmental indicators survey and follow-up	? Participate in environmental indicators survey and follow-up . Continue to identify data gaps and develop a plan to fill them . As a case study, examine the effects of activities related to Banff Townsite . Identify "ecological integrity" parameters and reporting methods . Identify and standardize parameters and methods for Parks SOE Reporting	
1990/91	. With data specialists, develop a preliminary national set of environmental indicators ? Continue St. Lawrence cross-sectoral project . Continue with development and application of sustainable development indicators		. Continue work on development of indicators for SOE		? Develop a study to examine national parks as benchmarks for environmental monitoring and research . Continue work on "ecological integrity" . Finalize plan for filling data gaps	
1991/92	. Continue work on a national set of environmental indicators and link with international efforts . Continue work on sustainable development indicators		. Continue work on development of indicators for SOE		. Begin process of filling data gaps	
1992/93	. Continue to develop refine and evaluate new indicators for SOE reporting		. Continue to develop and evaluate new indicators for SOE reporting		. Continue process of filling data gaps	

PAY	YAK	ONTARIO	QUEBEC	ATLANTIC	OCEANS
. Draft report on use of marine contaminants data for SOE reporting (Dec/88)			. Participate in pilot study to apply an integrated cross-sectoral approach to the St. Lawrence SOE . Feasibility study on how to evaluate the physical, chemical, biological and social consequences/impacts of climate change on the St. Lawrence	. Initiate work on integrated monitoring in transboundary Canada/U.S. area	
. Participate in environmental indicators survey and follow-up	. Participate in environmental indicators survey and follow-up	. Participate in environmental indicators survey and follow-up	. Participate in environmental indicators survey and follow-up . Study of impact of climate change on natural resources and human activities along the St. Lawrence River . Continue work on St. Lawrence cross-sectoral pilot project, with SOE Br. (July/89)	. Participate in environmental indicators survey and follow-up ? Initiate pilot study using integrated, cross-sectoral approach to assess a priority regional issue	. Participate in environmental indicators survey and follow-up
. Assess regional AES data sets and develop methodology to detect temporal climate change			. Establish a bio-indicator monitoring network		
			. Operate the network	. Develop techniques to evaluate effectiveness of regional SOE reporting program . Examine existing use of environmental indicators and broaden knowledge of new and better indicators that reflect more precisely the state of the environment	
			. Operate the network	. Examine ways to make more effective use of integrated data	

STRATEGY 5: SOE FOR IMPROVED DECISION-MAKING

FISCAL YEAR	SOE SEARCH	CPG, COMMERCIC, P&A	C&P	AES	PARKS	STATE CAN
1988/89			? Water pricing assessment and water use optimization (IW) ? Identify deficiencies in capabilities to support decision-making, i.e. in environmental quality monitoring, in evaluation and in reporting (EP, CWS, IW)			
1989/90	. Produce concept paper on the use of SOE reporting in resource-management decision-making		? In case studies that evaluate improved environment-economy linkages, use SOE information to measure improved environmental conditions (CWS) ? Continue work on identifying deficiencies and draft plan to overcome these (EP, CWS, IW)		? Develop a plan to promote the use of SOE information in resource-management decision-making that affects Parks	
1990/91	. Follow-up work on use of SOE data in decision-making # Initiate survey of private and public sector decision-makers re use of SOE information in corporate planning and decision-making # Initiate review of federal programs and report on the use of SOE information to evaluate the effectiveness of these programs in supporting sustainable development	. Coordinate links with NGOs, OCDs and private sector for decision-maker survey (CPG)			? Promote the use of Parks SOE data in resource management decision-making within Parks Canada	
1991/92	. Follow-up work on SOE and decision-making and decision-makers survey # Initiate development of methods to relate federal program outputs to observable changes in environmental quality	? Promote the use of SOE information in resource-management policy and decision-making			? Promote the use of all types of SOE data in Parks Canada decision-making	
1992/93	? Follow-up work on methods to relate federal program outputs to observable changes in environmental quality	? Promote the use of SOE information in resource-management policy and decision-making			? Promote the use of SOE data in resource-management decision-making	

Symbols: . confirmed # active consideration ? opportunity

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P&T	WAB	ONTARIO	QUEBEC	ATLANTIC	OCRS
				. Provide SOE information to enable better analysis for env-economy studies and improved management practices	
? In regional case studies, demonstrate use of SOE data to evaluate improvements in environmental conditions resulting from improved environmental-economy linkages		? Initiate a study to demonstrate usefulness of Great Lakes SOE info to resource managers and decision-makers in the Great Lakes basin		? In regional case studies, demonstrate use of SOE info to evaluate improvements in env. conditions resulting from improved env.-economy linkages	
			. Evaluate success of St. Lawrence Action Plan using SOE Reporting information and analysis . Initiate a study to demonstrate usefulness of St. Lawrence SOE information to regional resource managers and decision-makers	. Provide direction re need to fill data gaps and improve effectiveness of programs and management	

STRATEGY 6: SOE COMMUNICATIONS AND MARKETING

FISCAL YEAR	SOE SEARCH	CPG, CONSUMIC, FAA	CAP	ARS	PARKS	STATS CAN
1988/89	. Publish 3 newsletters (June, November and February) . Participate in information sessions with OGDs, provinces and regions . Organize an SOE planning workshop (Nov/88) and produce summary of proceedings	. Produce a brochure on SOE reporting . Organize information session with State Can on SOE database (May 1988) . Organize information session with OGDs (June 1988) . Prepare a national communications plan on SOE reporting with all services and regions . Establish contacts with educational boards	. Provide input to national SOE communications plan	. Provide input to national SOE communications plan	. Provide input to national communications plan on SOE . Provide input and review the communications documents of others to ensure cross-service interests are reflected	. Organize information session with Environment Canada on SOE Information System (May 1988) . Contribute to SOE newsletter . Participate in Information Sessions with OGDs and provinces
1989/90	. Prepare a concept report that identifies innovative SOE product options and relates these to a range of potential audiences . Publish 3 newsletters . Participate in regional and provincial workshops and continue liaison with provinces, OGDs, NGOs etc. . Provide input to international SOE efforts # Assist in co-ordination of fed/prov SOE workshop and organize technical session (Fall/89) . Produce display on SOE reporting program	. Implement communications plan ? Conduct survey of public opinion/attitudes (Comm) . Assist regions with SOE marketing and advise on audiences/products (Comm) . Develop and refine SOE product options and produce promotional material # Assist in organizing fed/prov SOE workshop (Fall/89) . Establish communications 'partnerships' . Develop educational material and establish co-sponsors/partners . Maintain existing and develop new international contacts on SOE reporting				. With Environment Canada, continue liaison with OGDs, Provinces and NGOs . Contribute to SOE newsletter . Provide environmental statistics for international organizations (OECD, UN, ECE)
1990/91	# With CPG, prepare SOE session for National Conference on Sustainable Development (1990) or other conferences . Publish 3 newsletters # Host an SOE workshop . Provide input to international SOE efforts	. Prepare SOE series/clips for T.V. to promote national report on Canada's SOE . Prepare slide-tape show on SOE for exhibitions, displays . Orchestrate media and special events for SOE as opportunities arise . Maintain international liaison . Implement communication plan elements, advertising and promotion for 1991 report				. Support Communications' requirements re SOE information system . Provide environmental statistics for international work
1991/92	# Prepare SOE contribution for Canada's possible input to International Conference on Sustainable Development (1992) # Participate in national and international SOE events . Publish 3 newsletters	. Implement communication plan elements . Organize media kits and press releases for 1991 national report . Prepare 'feature' articles for SOE national report publicity . Arrange for interviews and features on T.V. and radio programs (e.g.: Nature of Things, The Journal)				. Support Communications' activities re release of Environmental Statistics Book . Support Communications' requirements re SOE information system . Provide environmental statistics for international work
1992/93	. Publish 3 newsletters # Participate in national and international SOE events ? Support stakeholders (NGOs) workshop on SOE reporting	. Re-evaluate changes in public attitudes . Implement planned communications activities and products . Seek opportunities to enhance SOE awareness				

Symbol: . confirmed # active consideration ? potential opportunity REVISED FEB/89

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P&T	W&M	ONTARIO	QUEBEC	ATLANTIC	OCRS
. Organize meetings with B.C. gov't on SOE reporting (Spring, Fall 1988) . Develop communications plan for report on Pollutants in Pacific Marine Environment and link with a variety of regional priority issues . Provide input to national SOE communications plan	. Provide input to national SOE communications plan	. Provide input to national SOE communications plan	. Develop agreement with Quebec re SOE reporting . Provide input to national SOE communications plan	. Make working level contacts with provincial environment departments for input to regional report (August 1988) . Provide input to national SOE communications plan	
. Market Habitat fact sheet in concert with communication activities for Fraser Estuary film . Provide regional input to and review National Groundwater Report communications plan . Develop communications plan for State of Lower Fraser River Report # Co-host a federal-provincial workshop on SOE reporting with province (Fall/89)	. Organize regional workshop to plan for 1994 comprehensive Prairie region SOE report		. Organize user/client workshop on SOE Reporting . Conclude agreement with Quebec and other actors on SOE responsibilities . Develop a regional SOE communications plan . Produce concept paper on SOE product options, with SOE Br.	. Involve NGO's and provinces in Atlantic Region SOE overview	
. Provide regional input to State of Marine Environment national communications plan . Co-ordinate public sessions, organize and use media opportunities to link regional priorities/issues with SOE reporting . Provide regional input to national communications activities and market/distribute HQ products . Assist/market State of B.C. Forests Report					
. Provide regional input to national communications activities . Develop and implement SOE Reporting media plan for the region . Assist with regional distribution of 1991 report, media kits and fact sheets, other HQ products . Prepare regional feature articles related to SOE Reporting				. Work with educators to develop SOE school kits	
. Assist in marketing State of B.C. Report . Promote video on Climate change trends and effects in B.C.					